

Find the Percent of Change

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CONCEPT 1 Find the Percent of Change

Here you'll find the percent of change.

Have you ever gone to a gym to exercise? Many people do each day, but sometimes the rates change. Take a look at this dilemma.



A gym's membership went from 2100 members one year to 2410 members the next. This is a difference of 310 members. What was the percent of change?

To figure this out, you will need to know how to calculate a percent of change. Pay close attention and you will learn how to do this by the end of the Concept.

Guidance

We can find the percent of change if we know an original amount and how much it either increased or decreased. At times, however, we are given the percent of increase or decrease and need to calculate a new amount.

Let's look at how we can calculate this new amount by using the percent of change.

A restaurant manager has noticed an increase in the cost of utilities of 4%. In order to pay for the increased costs, he decides to increase prices by 4% as well. Not all items are priced the same. The chicken platter currently costs \$5.99 and the steak platter cost \$7.99. If the prices are increased by 4%, what will the new prices be?

Notice that we are going to create two new amounts. We are going to create a new cost for the chicken platter, and we are going to create a new cost for the steak platter. We have original amounts and the percent of the increase, so now we need to calculate a new amount.

First we must calculate how much the change will be. The prices are increasing by 4% so we must know how much 4% is of each price.

Chicken Platter

Price : \$5.99

4% of price = $5.99 \times 4\%$

or $5.99 \times .04$

Price change = .24

Steak Platter

Price : \$7.99

4% of price = $7.99 \times 4\%$

or $7.99 \times .04$

Price change = .32

Now we know how much each platter's price is going to change? Since this is an increase, we will add the price change to the price. If it were a decrease, we would subtract the decrease from the price.

$$\begin{array}{r}
 \text{Previous price : } \$5.99 \\
 \phantom{\text{Previous price : }} \underline{.24} \\
 \text{New Price } \$6.23
 \end{array}$$

$$\begin{array}{r}
 \text{Previous price : } \$7.99 \\
 \phantom{\text{Previous price : }} \underline{.32} \\
 \text{New Price } \$8.31
 \end{array}$$

Let's summarize. In order to find the new amount, we calculate the change amount by multiplying the original amount by the percent of change. We then add the change amount to the original amount for an increase or we subtract the change amount from the original amount for a decrease.

Take a look at this situation.

Find the new amount if 60 is decreased by 27%.

amount of change: $60 \times .27 = 16.2$

subtract the amount of change from the original amount: $60 - 16.2 = 43.8$

The answer is 43.8.

Find each percent of change.

Example A

Find the new amount if 10 is increased by 18%.

Solution: 11.8

Example B

Find the new amount if 16 is decreased by 20%.

Solution: 12.8

Example C

Find the new amount if 250 is increase by 30%.

Solution: 325

Now let's go back to the dilemma from the beginning of the Concept.

This percent is increasing, so we want to find the percent of the increase. We know the difference so now we can divide and multiply.

$$\frac{310}{2100} = .148 = 14.8\%$$

The gyms membership increased by 14.8%.

Vocabulary

Percent

a part of a whole out of 100.

Percent of Increase

the percent of change that a value increased.

Percent of Decrease

the percent of change that a value decreased.

Guided Practice

Here is one for you to try on your own.

The number of students participating in the chess club increased in one year. It started off with 35 students and had an increase of 55%. Figure out the new number of students in the chess club given this increase.

Solution

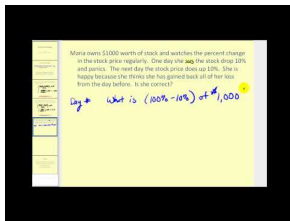
First, figure out the amount of the increase.

$$35 \times .55 = 19.2$$

There was an increase of 19 students.

We can add that increase to the original amount.

The new number of students participating is 54 students.

Video Review**MEDIA**

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Percent of Change**Practice**

Directions: Use percent to find the new amount. You may round to the nearest whole number when necessary.

1. 82 increased by 90%
2. 64 decreased by 10%
3. 9 increased by 55%
4. 25,470 decreased by 77%
5. 75 increased by 10%
6. 33 decreased by 5%
7. 99 increased by 15%
8. 40 decreased by 8%
9. 56 increased by 25%
10. 900 decreased by 30%
11. 800 increased by 23%
12. 789 increased by 12%
13. 880 decreased by 10%
14. 450 increased by 45%
15. 855 decreased by 18%